

**© THE QUEEN'S PRINTER FOR
ONTARIO
2000**

REPRODUCED WITH PERMISSION

**L'IMPRIMEUR DE LA REINE POUR
L'ONTARIO**

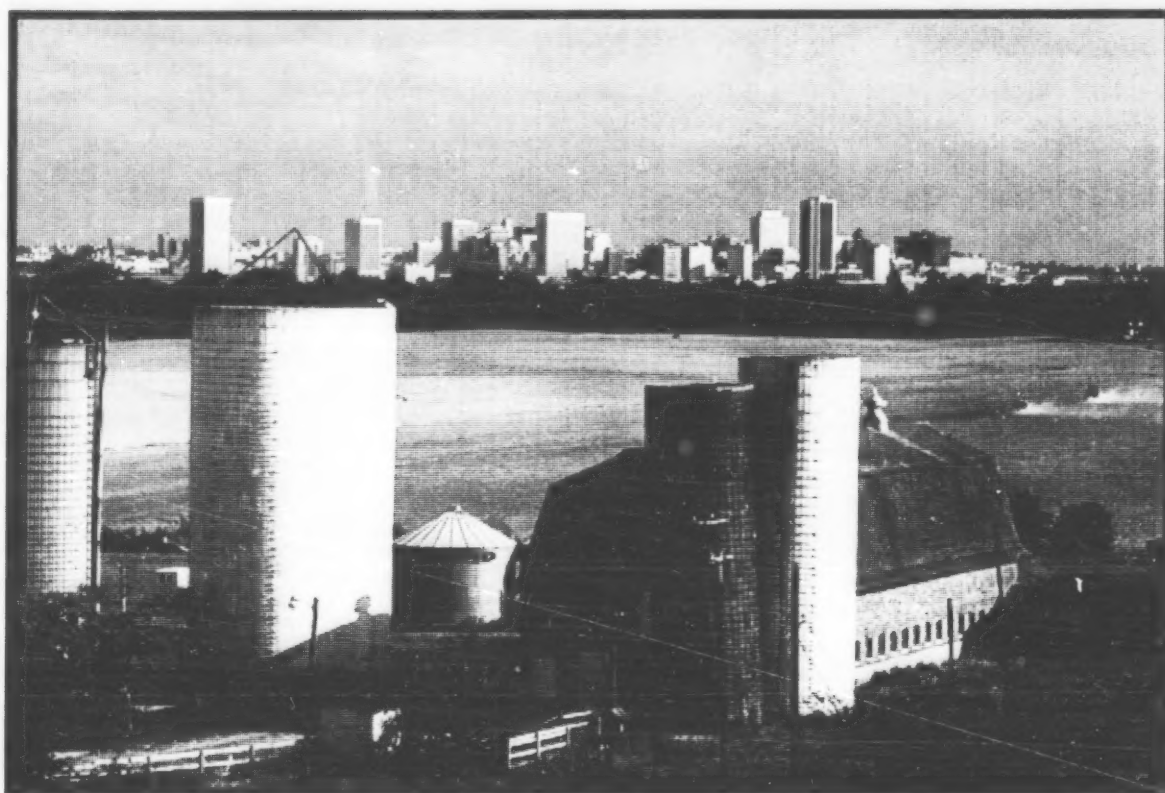
REPRODUIT AVEC PERMISSION

micromedia
a division of IHS Canada

20 Victoria Street
Toronto, Ontario M5C 2N8
Tel: (416) 362-5211
Toll free: 1-800-387-2689
Fax: (416) 362-6161
Email: info@micromedia.on.ca

Agricultural Research Institute of Ontario

Institut de recherche
agricole de l'Ontario



Annual Report
1999 – 2000
Rapport Annuel

<http://www.gov.on.ca/OMAFRA/english/research/index.html>

Agricultural Research Institute of Ontario

Institut de recherche
agricole de l'Ontario

ARIO Mission Statement and Membership

Chair's Report

Director's Report

Financial Information

- auditor's report
- combined balance sheet
- combined statement of revenue and expenses
- notes to financial statements

ARIO Budget

- 1999-2000 research funding
- OMAFRA total research expenditures 1975-76 to 1999-2000

ARIO Reviews of Research During 1999-2000

- Environment and Natural Resources Program (1996-1999)
- Agri-food System Resources and Environment Program (1999-2003)
- Sustainable Rural Communities Program (1995-1999) & (1999-2003)

Mission Statement and Members

ARIO Mission Statement

Research for Ontario's Agri-food Industry:

The Agricultural Research Institute of Ontario Act, passed in 1962 by the Provincial Legislature, created the Institute (ARIO) with specific responsibilities concerning the Ontario Ministry of Agriculture, Food and Rural Affairs' (OMAFRA's) expenditure of research funds for agriculture, food, rural development and veterinary medicine. The ARIO meets five or six times annually to review and make recommendations to the Minister of OMARFA concerning funding in these areas of research, and to encourage the progress of the research for the benefit of all Ontarians.

Guided by the Act, the ARIO members seek to perform their duties according to this mission:

To provide priority and direction for research activities that will contribute to prosperous, competitive and sustainable agriculture, food and rural sectors in Ontario.

Under the Act, the Institute may accept donations and grants for research which are held in trust by the Director of Research and allocated for research in accordance with the terms of the funds.

1999-2000 ARIO Members:

Janet Horner, Chair, to December 31, 1999

James Wadleigh, Chair, Beginning January 1, 2000

Norris Hoag, Director of Research, to November 18, 1999

Deborah Stark, Director of Research, beginning November 19, 1999

Dorothy Page, Comptroller

Irene Engell, Recording Secretary

Peter Connell

Terrance Cowan

Tom Cowan

Anita Gilmer

Graeme Hedley

Ginty Joclus

Donna Lalley

Yvon Martel (ex-officio)

Brian Overgaard

Janet Parsons

Murray Pennell

Zaher Qaderi

Inge Russell

Dona Stewardson



Letter from the Chair

Guelph, Ontario
March 31, 2000

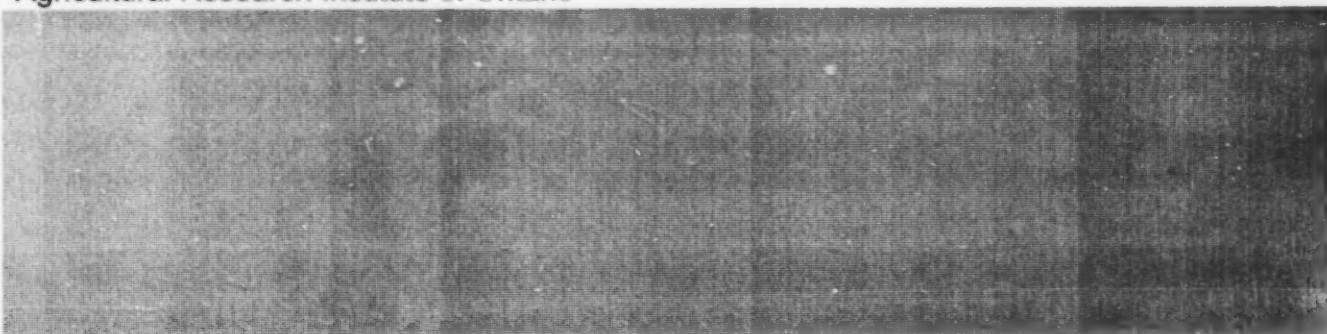
The Honourable Ernie Hardeman
Minister of Agriculture, Food and Rural Affairs
Legislative Buildings
Toronto, ON M7A 1A3

Dear Sir:

I have the honour to submit the thirty-sixth report of the Agricultural Research Institute of Ontario for the period April 1, 1999 to March 31, 2000.

It highlights many of the research accomplishments reported during this past fiscal year and reviewed by members of the Institute. The ARIO is pleased to support the continued high quality research vital to Ontario's agri-food industry, carried out under the OMAFRA- University of Guelph research partnership. The Institute also acknowledges the valuable contribution of collaborators such as Agriculture and Agri-food Canada, in helping to ensure a continued secure food supply for all Ontarians.

James Wadleigh
Chair
Agricultural Research Institute of Ontario



Chair's Report

Chair's Annual Statement

The Agricultural Research Institute of Ontario was created to ensure that the research needs of the agrifood and rural sector are met by a strong and responsive OMAFA-funded research program. Safe, abundant, high-quality food is needed to fill domestic and export demand, and to develop new markets to keep Ontario prosperous.

Research programs are reviewed and approved by ARIO on a four-year cycle. Recently, ARIO began annual updates to allow researchers and industry stakeholders to adjust to new conditions and priorities. New ways to shift resources to urgent research priorities are being sought.

In 1999-2000, ARIO reviewed the Environment and Natural Resources Program, receiving reports of accomplishments from 1996-1999, and the proposed 1998-2003 program of research. ARIO approved a program that reflected the priorities set by the broad representation to the research prioritization groups. Some of the current challenges with water, for example, have been and continue to be studied. Results of this work are being incorporated into action plans and standards at provincial and municipal levels. There are challenges with this program in funding. Since the target audience for Environment and Natural Resource research is frequently not commercially focused, the program is sensitive to changes in public funding. This challenges our research leadership to ensure that we continue to have the science on which to base sound environmental stewardship policy.

The new Sustainable Rural Communities program was introduced and reviewed in 1999-2000, the first review as part of the ARIO/OASSC system. A modest but well focused program of socio-economic research was approved, with good evidence that matching funding from local sources had been actively solicited. This research program is very dependent on funding from provincial and municipal levels and the need for good science in the rapidly changing rural landscape has never been greater.

To assist ARIO in its research planning, reviews of other jurisdictions have proved useful. For this purpose, a study tour of Maritime agriculture was undertaken by ARIO in August 1999. Maritime agricultural issues are often similar to those in Ontario and are being addressed in a climate of severe economic stress. Many creative and energetic projects were studied, and ARIO members were impressed with the determination of the Maritime agriculture and food industry to not only survive, but also grow through creative partnerships.

In December of 1999, a major revision of ARIO's vision and strategic plan was approved. Our thanks to OMAFRA, Ag Canada and other staff who assisted ARIO in producing a visionary, practical plan to help guide our future work.

The Institute also thanks Mr. Norris Hoag, past Director of Research for ARIO, and always a strong champion and effective leader of the ARIO/OASSC system. We welcome Dr. Deb Stark and Dr. Larry Moore as they take on the ARIO portfolio. Their strong and diverse backgrounds will serve the public well as ARIO pursues its mandate of providing visionary guidance on research issues.

The ARIO/OASSC system is a complex, vital and unique structure, looked on with envy by other jurisdictions with large agricultural research programs. On behalf of the members of ARIO, we look forward to promoting an effective, responsive and high-quality public research program for the benefit of the people of Ontario.

Jim Wadleigh
Chair
Agricultural Research Institute of Ontario

Letter from the Director

Guelph, Ontario
March 31, 2000

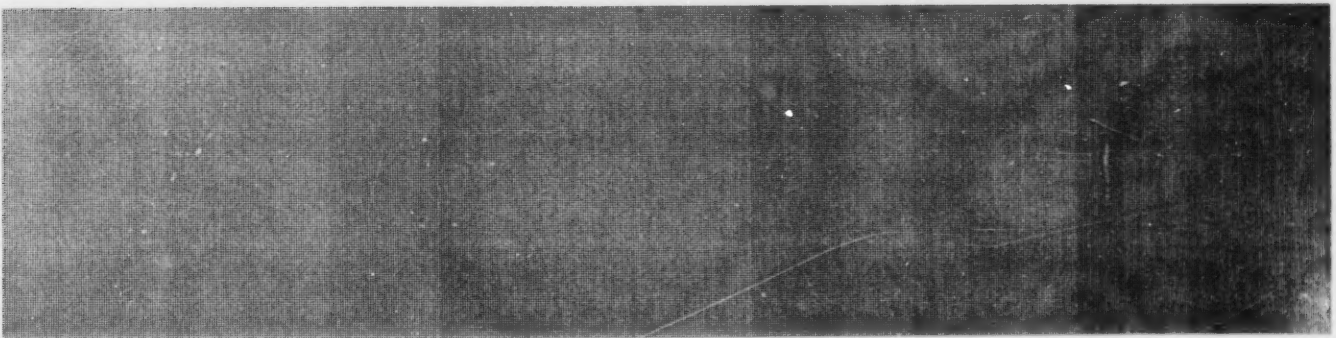
Mr. James Wadleigh
Chair
Agricultural Research Institute of Ontario

Dear Sir:

I am pleased to submit a report of the Ontario Ministry of Agriculture, Food and Rural Affairs' agri-food, rural and veterinary research programs supported by the OMAFRA-University of Guelph research partnership for the year ending March 31, 2000.

Respectfully submitted,

Deborah Stark, DVM
Director of Research
Agricultural Research Institute of Ontario



Director's Report

Director's Annual Statement

I am pleased to present a summary of the 1999- 2000 Strategic Directions for ARIO. The focus of the Institute's Strategic Plan is to encourage research which will produce knowledge and technology to benefit the agricultural and rural sectors, and indeed all Ontarions, through a safe, nutritious and economical food supply. For more details of the strategic plan, please visit the ARIO website at: www.gov.on.ca/omafra/english/research.

The Strategic Directions were developed under the leadership of Norris Hoag, former Director of Research for ARIO. On behalf of the Institute, I would like to extend my appreciation to him for his many years of dedicated service to the Institute and to Ontario's agri-food industry.

Financing and Funding

The sources of research funding, from both the public and private sector, are becoming increasingly diverse. To further complicate the situation, many of these funds are not specifically targeted at the agri-food sector and/or have funding criteria which require partnering or other leveraging action. Creating and coordinating a stable funding base from a large number and variety of public and private sources is viewed as critical to the future of agri-food and rural research.

Food and Health

There is an increasing awareness of the association between food and health. Consumers are becoming more conscious of the health benefits of certain foods and food constituents. Opportunities exist for Ontario producers and processors to capitalize on this trend. ARIO wishes to encourage the funding of research and development programs that focus on health and food quality and safety along the entire market chain. For instance, production research should emphasize not only agronomic characteristics of new plant varieties but also the health promoting and processing quality parameters. Biotechnology offers the ability to enhance the desired traits. On the other hand, new processing technologies will be needed which preserve the beneficial health properties of the raw material.

Markets and Trade

Ontario enjoys a reputation for high quality, safe, environmentally responsible products. In order to remain competitive, Ontario's producers and processors must ensure that their products will not encounter barriers to trade imposed because of concerns about safety or environmental problems. ARIO encourages a focus on value-added, high quality products that can be produced and marketed in a manner that meets or exceeds all international standards.



Director's Report

Environment

Ontario's reputation for a pristine environment gives us a competitive advantage in the international marketplace. Long term solutions are needed if environmental sustainability is to be attained. ARIO encourages research activities which will enhance Ontario's environmental sustainability. All research work should be designed and carried out within a framework of environmental responsibility and the results of such research assessed as to its environmental impact.

Balance of Basic and Applied Research

The myriad of current problems facing the agri-food and rural sectors tend to drive funding toward short term solutions at the expense of longer term needs. While the immediate concerns need to be solved, it is recognized that true progress and sustainability for the industry and rural communities depend on investment in the future. ARIO will work toward a balance between the discovery of fundamental knowledge and turning it to practical use.

Critical Mass of Expertise

There is concern about the ability of Ontario agri-food research establishments to attract and retain high quality scientists that can discover the technologies needed to move this industry forward. ARIO wishes to encourage the maintenance of a critical mass of human resources in agri-food and rural research programs in Ontario. Innovative solutions will be needed to manage this issue.

Advanced Agri-Food Technologies

New tools such as biotechnology, geographic information systems, robotics, artificial intelligence have great potential for application in the agriculture and food sectors. ARIO will promote the development and use of biotechnology and other advanced technologies within the parameters of moral, cultural, health and ethical standards.

Socio-Economic

The changing infrastructure in rural Ontario has created a new set of problems and challenges for rural communities. ARIO will encourage research which will provide the tools for good decision making in the rural community.

Deborah Stark, DVM
Director of Research
Agricultural Research Institute of Ontario

Financial Information



ROBINSON LOTT & BROHMAN LLP

Chartered Accountants and Consultants

PARTNERS

W. J. BROTHMAN, C.A.
R. E. BROTHMAN, C.A.
J. F. BARR, C.A.
D. R. LOTT, C.M.A., C.F.A.

N. W. EDWARDS, C.A.
J. W. WRIGHT, C.A.
W. A. MARTIN, C.A.

A. PERROTTA, C.A.
M. A. MANIRA, C.A.
T. J. CASKELL, C.A.

D. H. MACKENZIE, C.A.
G. J. BARR, C.A.
M. B. ROBINSON, C.A.

NO FIDELITY

T. G. ROBINSON, C.A.
R. W. LOTT, C.A.
J. C. ARNOLD, C.A.
H. SIMPSON, C.A.

Auditors' Report

To the Director of Agricultural Research Institute of Ontario

We have audited the combined balance sheet of the Research Trust Funds of the **Agricultural Research Institute of Ontario ("ARIO")** as at March 31, 2000 and the combined statement of revenue and expenses for the year then ended. These financial statements are the responsibility of ARIO's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Research Trust Funds of the Agricultural Research Institute of Ontario as at March 31, 2000 and the results of their operations for the year then ended in accordance with generally accepted accounting principles.

Guelph, Ontario
August 18, 2000

Robinson Lott & Brohman LLP
Chartered Accountants

15 Lewis Road, Guelph, Ontario N1H 1E9
BUS (519) 822-9933 FAX (519) 822-9212
www.rlb.ca

POLARIS
INTERNATIONAL

Financial Information

Combined Balance Sheet

As at March 31, 2000

	ARIO (note 3)	GWAP	Enhanced Food Quality and Safety	Food Processing Development	Food Systems 2002	VMAP	Niagara Tender Fruit Lands	Special Research	Swine Medicine	ISFRATT	Healthy Futures	March 31 2000 Total
Assets												
Cash and cash equivalents	13,471,169											12,134,457
Due from ARIO		335,147	772,763	440,948	631,848	527,266	4,632,196	4,051,144	33,257	709,888	34,774,667	48,245,836
Accounts receivable	26,052	6,858	16,370	9,039	15,716	11,054	90,158	276,613	639	19,526		12,134,457
Advance												472,025
Land	9,793									100,624		100,624
												9,793
	13,507,014	342,005	789,133	449,987	647,564	538,320	4,722,354	4,327,757	33,896	830,038	34,774,667	60,962,735
Liabilities												
Due to other research trust funds	12,134,457											12,134,457
Accounts payable	234,102	54,379	82,990		150,105			129,863	3			651,462
Unclaimed expenditures		151,248	430,648	10,109	251,916	17,504		1,173,052		324,178		2,358,655
Holdbacks			21,101	1,300	98,928	499		3,471		6,518		131,817
Liability for dissolution of program (note 4)							4,722,354					4,722,354
	12,368,559	205,627	534,739	11,409	500,949	18,003	4,722,354	1,306,406	3	330,696	0	19,998,745
	1,138,455	136,378	254,394	438,578	146,615	520,317	0	3,021,351	33,893	499,342	34,774,667	40,963,990
Fund balance	13,507,014	342,005	789,133	449,987	647,564	538,320	4,722,354	4,327,757	33,896	830,038	34,774,667	60,962,735

Financial Information

Combined Statement of Revenue and Expenses

As at March 31, 2000

	ARIO (note 3)	GWAP	Enhanced Food Quality and Safety	Food Processing Development	Food Systems 2002	VMAP	Niagara Tender Fruit Lands	Special Research	Swine Medicine	ISFRATT	Healthy Futures	March 31 2000 Total
Revenue												
Grant income												
Revenue and royalties	579,524	19,934						1,550,000			34,600,000	36,150,000
Investment income	60,453	26,787	39,180	22,010	39,641	28,219	249,255	178,964	43,896	46,280	174,667	643,354
									1,585			867,041
Expenses												
Liability for dissolution of program (note 4)	639,977	46,721	39,180	22,010	39,641	28,219	249,255	1,728,964	45,481	46,280	34,774,667	37,660,395
	860,213	120,063	203,707	25,353	448,727	81,559	9,908	412,110	23,524	588,883		2,774,047
							239,347					239,347
Net revenue (expenses)	(220,236)	(73,342)	(164,527)	(3,343)	(409,086)	(53,340)	0	1,316,854	21,957	(542,603)	34,774,667	34,647,001
Fund balance - Beginning of year	1,358,691	90,410	354,954	409,128	131,773	534,820		2,800,799	11,936	455,208		6,147,719
Net amount transferred from (to) unclaimed Expenditures		119,310	63,967	32,793	423,928	38,837		(1,096,302)		586,737		169,270
Fund balance - end of year	1,138,455	136,378	254,394	438,578	146,615	520,317	0	3,021,351	33,893	499,342	34,774,667	40,963,990

Financial Information

Notes to the Financial Statements

For the Year Ended March 31, 2000

1. NATURE OF BUSINESS

The Agricultural Research Institute of Ontario (ARIO) is a non-profit corporate body reporting directly to the Minister of Agriculture, Food and Rural Affairs. It was created by the ARIO Act (1962) with specific responsibilities over the coordination and direction of agricultural research programs in Ontario. These programs relate to a broad range of commodities and disciplines, covering all aspects of the agri-food system. In addition, ARIO manages the Vegetation Management Alternatives Program research fund on behalf of the Ministry of Natural Resources, and all funding is provided by the Ministry of Natural Resources.

Funding for programs supported by the ARIO is available from two sources. The Ontario government, through the Ministry of Agriculture, Food and Rural Affairs, is the primary source of funding. The Ontario Government also provides funding for the competitive research programs. The secondary source of funding is the private sector. Under the ARIO Act, the Institute may accept grants and donations for research. These funds usually come from commercial sources (such as agri-business, marketing boards, and producer associations) and can be either designated for specific projects or non-designated. In addition, with the approval of the Minister of Agriculture, Food and Rural Affairs, the ARIO is able to hold patents and earn royalties on research developments.

All receipts are held in trust by the Director of Research and are allocated in accordance with the terms of the funds.

The research funds managed by ARIO and its board of directors during the year are as follows:

- Agricultural Research Institute of Ontario (ARIO)
- Grape and Wine Adjustment Program (GWAP)
- Enhanced Food Quality and Safety
- Food Processing Development
- Food Systems 2002
- Vegetation Management Alternatives Program (VMAP)
- Niagara Tender Fruit Lands Program
- Special Research
- Swine Medicine Courses
- Ice Storm Forest Research and Technology Transfer (ISFRATT)

ARIO invests the financial resources for the Healthy Futures for Ontario Agriculture program. The program is staffed by a separate secretariat and an independent expert panel reviews and recommends the best project for funding to the Minister of Agriculture, Food and Rural Affairs.

Financial Information

2. SIGNIFICANT ACCOUNTING POLICIES

(a) INVESTMENTS

All investments are carried at cost plus accrued interest and are recorded on the trade date basis.

(b) UNCLAIMED EXPENDITURES

Unclaimed expenditures are defined as the total budget for competitive research projects less expenses.

(c) INCOME TAXES

ARIO is not subject to income taxes.

(d) RESTRICTIONS ON THE EXPENDITURE OF FUNDS

The purpose, funding, terms and conditions, and the duration of each research trust fund are stipulated in the relevant Order-in-Council or Ministry correspondence.

(e) FINANCIAL INSTRUMENT

Carrying amounts of certain of the organization's financial instruments including cash, accounts receivable, prepaid expenses, accounts payable, unclaimed expenditures and holdbacks approximate fair value due to their short maturities.

3. ARIO RESEARCH FUND

Revenues and expenses related to this fund consist of:

	Designated Funds	Seed Royalty/ U of Guelph Plant Agriculture	Technology Royalty	Unpledged Equity	Total
Revenue and royalties	\$127,355	\$422,715	\$29,046	\$408	\$579,524
Investment income	3,486	22,358	28,671	5,938	60,453
	130,841	445,073	57,717	6,346	639,977
Expenses	100,815	724,678	34,439	281	860,213
Net revenue (expenses)	30,026	-279,605	23,278	6,065	-220,236
Fund balance, beginning of year	56,992	601,567	580,530	119,602	1,358,691
Fund balance, end of year	\$87,018	\$321,962	603,808	125,667	\$1,138,455

Financial Information

4. LIABILITY FOR DISSOLUTION OF PROGRAM

The Niagara Tender Fruit Lands program was cancelled in July, 1995 after grant income of 3,759,000 had been received and costs of \$1,400 had been incurred under agreements, which had been entered into. There have been claims filed against ARIO for breach of contract due to the cancellation of the program. In management's estimate, the funds on hand in the Niagara Tender Fruit Lands Research Trust Fund are sufficient to cover any costs arising from these claims. Any residual funds are expected to be returned to the Ontario government through the Ministry of Agriculture, Food and Rural Affairs.

5. STATEMENT OF CASH FLOWS

A statement of cash flows has not been presented, as it would provide no additional meaningful information.

6. UNCERTAINTY DUE TO THE YEAR 2000 ISSUE

The Year 2000 Issue arises because many computerized systems use two digits rather than four to identify a year. Date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems may arise in some systems which use certain dates in 1999 to represent something other than a date. Although the change in date has occurred, it is not possible to conclude that all aspects of the Year 2000 Issue that may affect the entity, including those related to customers, suppliers or third parties, have been fully resolved.

7. COMPARATIVE FIGURES

The comparative figures were audited by another auditor.

ARIO Budget

Ontario Government Funding

Research Branch	\$	1,027,140
University of Guelph		33,700,000
Agriculture & Rural Division		-
Swine Medicines		
OSHIP*		
Sub Total	\$	34,727,140

ARIO Trust Fund Expense

	\$	-
		(*1)779,350
		23,524
		61,474
Sub Total	\$	864,348

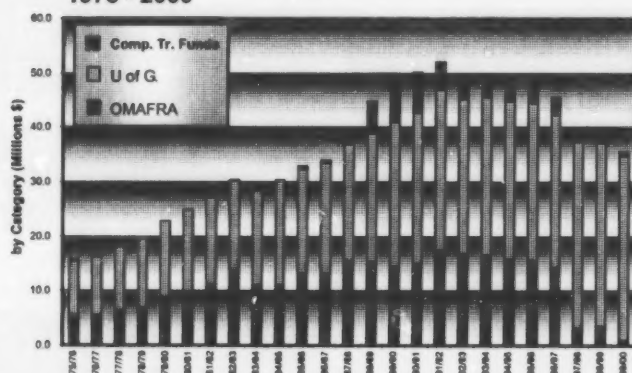
ARIO Competitive Trust Funds

Enhanced Food Quality & Safety	\$	-	\$	203,707
Food Processing Research		-		25,353
Food System 2002		-		448,727
Special Research		550,000		412,110
Sub Total	\$	550,000	\$	1,089,897

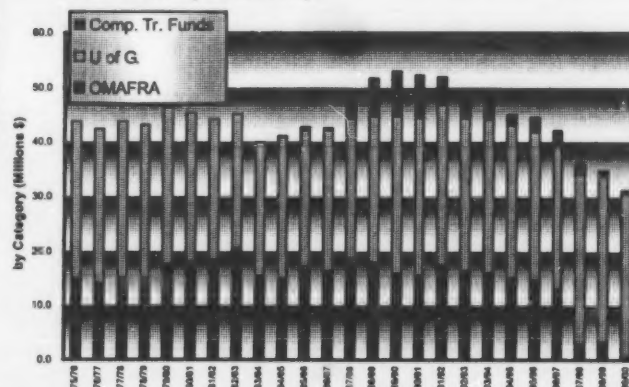
TOTAL	\$	35,277,140	\$	1,954,245
--------------	-----------	-------------------	-----------	------------------

*Ontario Swine Herd Improvement Program

OMAFRA TOTAL RESEARCH EXPENDITURES 1975 - 2000



Expressed in Constant Dollars Using 1992 Base Year (1992=100)



ARIO Research Reviews During 1999-2000

Environment and Natural Resources Program (1996-1999)

ARIO Review

OMAFRA-funded research in the *Environment and Natural Resources Program (1996-1999)* at the University of Guelph, was last reviewed and approved by ARIO in February 1996. The University provided an update to ARIO in June 1997. The program had not been scheduled for review in Spring 1999, but was wound up a year early and incorporated into the new *Agri-Food System Resources and Environment Program (1999-2003)*. The accomplishments of the former program, as well as the research directions for the new program are reported below.

Research Accomplishments

Total OMAFRA funding to the program was \$1.7 million in 1996-97, and \$1.8 million for the following two years. Highlights of the program are summarized below. For more information about the program, visit the OMAFRA-University of Guelph research partnership webpage at: www.uoguelph.ca/research/omafra/environ/index.html

Manure Management / Waste Application & Treatment

- ✓ A comprehensive decision support system has been developed for manure management on dairy, swine, poultry and beef operations. It integrates information on animal nutrition, engineering aspects of manure handling in the barn, in storage and during land application, soil and water environmental impacts and the economics of manure handling and environmental risk.
- ✓ Odour dispersion scenarios were modeled to predict outcomes in different agricultural operations.
- ✓ Use of aeration and management of the C:N ratio in farm scale composting were studied as means of controlling odours from liquid pig manure.
- ✓ The risk to groundwater of applying liquid manure in late fall on land not prone to runoff was evaluated.
- ✓ A new waste management research / demonstration / training centre was established at Alfred College and Guelph.
- ✓ Models were developed for evaluation of septic systems, assessment of leaching to ground water in short-term load fluctuations, and to verify current minimum separation of waste water trenches.
- ✓ Three hundred farm drinking water wells were surveyed to measure faecal contamination. An assemblage of indicator organisms for faecal contamination was developed and tested. The relationship between well vulnerability to bacteriological contamination and stratigraphy were investigated.
- ✓ Sixty Ontario livestock farms were surveyed to determine levels of the pathogens *Cryptosporidium* and *Giardia* in fresh and stored manure.
- ✓ A method was developed to detect *Cryptosporidium parvum* in municipal water samples using a nested polymerase chain reaction.

ARIO Research Reviews During 1999-2000

Nitrogen Use Efficiency

- ✓ The Ontario soil nitrate test in late May-early July was verified as the best means of estimating fertilizer N requirements for corn.
- ✓ Nitrate leaching to groundwater was shown to be only partially due to the application of nitrate fertilizers according to common agricultural practices.

Rural / Urban Water Conflict

- ✓ A model of the distributive impacts and efficiencies of different water policies was calibrated and tested.
- ✓ An inventory of current issues associated with water supply management was compiled for 45% of municipalities in Ontario, including 160 rural townships.

Site Specific Technology

- ✓ An electronic data base has been developed for storing remotely-sensed information on Ontario's agricultural land.

Riparian / Wetland Management

- ✓ Riparian strips were successful under some conditions in mitigating both subsurface and surface non-point pollution. For attenuation of nitrate, filter strips needed to be 30 m in length. The average efficiency of filter strips for trapping suspended solids was 85%. Efficiency of phosphorus removal was only 61%. Buffers possibly as narrow as 5 m were shown to be sufficient to entrap 70-80% of total suspended solids, representing minimum cropland loss to farmers.

Implementing Environmental Farm Plans

- ✓ An analytical support package was developed to aid farmer groups in implementing best management practices for nitrogen.
- ✓ A detailed nitrogen balance for a dairy farm was developed, accounting for movement of nitrogen and storage of nitrogen on the farm and across the farm gate.

ARIO Research Reviews During 1999-2000

Agri-food System Resources and Environment Program (1999-2003)

Mission Statement

To improve the planning and management of natural and economic resources for the agri-food system in Ontario such that a vibrant, competitive agriculture and food system is sustained, while conserving and enhancing environmental quality.

ARIO Review

The proposed research program for 1999-2003 was presented to ARIO in April 1999. Deliverables and milestones for the program were presented to ARIO in October 1999, at which time the future program was approved.

Future Research Directions

Increased proximity of a rural, non-farm population to agriculture, and the growth of resulting conflicts, are likely to continue. Rural groundwater will be stressed by increasing demand for drinking water by humans and animals, through septic and manure handling systems, and other agronomic practices. The agricultural land base will be under increasing pressure to accept an ever greater burden of waste from municipalities and industry. Research for the best management of our land resources is critical to help conserve our water resources and climate, for the economic viability of the industry.

The total annual budget for the *Agri-food System Resources & Environment Program* during the period 1999-2003 is \$3.4 million. A majority (85%) of the program's discretionary resources will be allocated to major issues and addresses the priorities of the Ontario Soil, Water and Air Research and Services Committee. These include:

- Agri-food support policy and research policy
- Changes to trade agreements
- Environmental management systems
- Evaluating best management practices
- Greenhouse gases and carbon sequestration
- Manure management
- Nitrogen use efficiency
- Product / Market development
- Riparian and wetland management
- Site specific management
- Supply chain management
- Waste application and treatment
- Water taking priorities

For more information about this program, visit the OMAFRA- University of Guelph research partnership webpage at: www.uoguelph.ca/research/omafra/environ/index.html

ARIO Research Reviews During 1999-2000

Sustainable Rural Communities Program (1995-1999)

Mission Statement

To contribute to the sustainability of rural Ontario by undertaking research that is effective in improving the economic, social and environmental conditions of rural communities.

ARIO Review

A report of OMAFRA-funded research in the *Sustainable Rural Communities Program (1995-1999)* at the University of Guelph, was presented to ARIO in June 1999 and approved.

Background

The New Rural Reality - While agriculture has been the traditional economic driver in rural Ontario, the rural economy has evolved greatly; since 1961 the number of census farms has dropped by 44% and the total area of farms has decreased by 25%. The service sector now accounts for the largest number of jobs in rural Ontario and is growing. More farm families are relying on off-farm income to meet their household income needs. Adding value to farm products and developing new businesses related to agriculture are effective approaches to diversify incomes and contribute to rural economies.

As farming and food systems change, so do other aspects of the rural economy, including the nature of work, rural demographics, geographical and social mobility, and the incidence of stress and conflict. The dynamics of the new rural economy may be characterized by the following trends:

- ✓ **JOBLESS GROWTH:** a shrinking farm community within a growing agriculture and food sector.
- ✓ **LABOUR MARKET SHIFTS:** high off-farm employment and a loss of services such as schools, banks and post offices.
- ✓ **NEW DEMOGRAPHICS:** fewer young people have chosen to reside or remain in most rural areas.
- ✓ **OPEN SOCIETY:** greater mobility of rural and farm populations for commuting, multiple job holding accessing services and marketing.
- ✓ **INCREASING POTENTIAL CONFLICTS:** clashes between rural and urban lifestyles, differing preferences among rural resident over land and water use, tourism activities, planning objectives and environmental measures.
- ✓ **MUNICIPAL RESTRUCTURING:** roles and responsibilities of local governments greatly altered through offloading, downsizing, amalgamation. Municipal roles and powers increasing tested as a result of land use conflicts.

Research Accomplishments

Total OMAFRA funding to the program was \$70,000 in 1995-96, \$60,000 in 1996-97, \$75,000 in 1997-98 and \$124,000 in 1998-99. A summary of project titles completed during 1994-1999 to address the new rural trends, are shown below. For more information about this program, visit the OMAFRA- University of Guelph research partnership webpage at: www.uoguelph.ca/research/omafra/rural/index.html

ARIO Research Reviews During 1999-2000

- ✓ Modeling Environmental Consequences of Residential Expansion into the Agricultural Country Side
- ✓ Health Care Restructuring in Rural Ontario: Potential Implications for the Rural Economy
- ✓ Demographic, Social and Economic Diversity of Small Town Southern Ontario
- ✓ Leading and Lagging Areas in Ontario: Huron County in the Provincial Context
- ✓ New Rural Enterprises in Huron County
- ✓ Huron County Micro-Enterprise Impact Evaluation Model
- ✓ Household Labour Supply in Huron County
- ✓ Adult Education in Huron County
- ✓ Ten Steps to Community Action: An Assessment of Leadership Training as a Community Economic Development Strategy in Huron County
- ✓ Economic Impact of Agriculture on the Economy of Huron County

Future Research Directions

Based on the outcomes of the 1995-1999 research program, ARIO approved a continued research program for the *Sustainable Rural Communities Program* for 1999-2003 under the OMAFRA University of Guelph research partnership. It directly addresses the research priorities identified by the Ontario Rural Communities Development Research and Services Committee and is supported by The Ontario Rural Council (TORC). There are four priority areas:

Economic Development: The need to strengthen economic growth, entrepreneurship and business efficiency in rural Ontario to allow rural residents to remain in their communities, while achieving improved standards of living;

Responding to Change and Restructuring: The need to understand and assist rural communities as they plan for the many changes occurring in rural Ontario.

Capacity Building: The need to better understand and promote abilities in rural communities for leadership, organization and community management.

Information Technology: Promotion of available and developing technology infrastructure in rural Ontario, with its social and economic implications.

In summary, the overall objective of the *Sustainable Rural Communities Program* for the period 1999-2003 is to create a system of research intelligence to address vital issues in rural Ontario, that have been defined by rural residents and their associations as key to community prosperity.